

**Cost Estimate for Rainy Mine
Alternative 2 - Excavation and Off-Site Disposal**

Qty	Unit	Description	Unit Cost	Cost	Comment
RAINY MINE - ALTERNATIVE 2: EXCAVATION AND OFF-SITE DISPOSAL					
ACCESS ROAD IMPROVEMENT					
1	ls	Access Road (FR 5640) Improvement	\$5,000.00	\$5,000.00	Estimate based on minor improvements to FR 5640
Access Road Improvement Subtotal =				\$5,000.00	
PHYSICAL HAZARDS MITIGATION:					
Bat Gate Installation					
1	ea	Bat gate, installed at open adit	\$5,500.00	\$5,500.00	
Bat Gate Installation Subtotal =				\$5,500.00	
Debris Removal					
20	cy	Load miscellaneous debris and litter, 1cy backhoe	\$3.32	\$66.44	
1	LS	Collect miscellaneous debris and litter including mobilization	\$5,000.00	\$5,000.00	Based on crew of 6 employees with no overnight stay
6	hr	Haul mill debris to sanitary landfill, 12cy dump, 120mi r.t.	\$81.62	\$489.69	Assumes 3 hours per truckload
Debris Removal Subtotal =				\$5,556.13	
MINE WASTE REMOVAL:					
Construction of Access Road					
100	ea	Clear trees, brush, and downfall	\$19.27	\$1,926.98	Rough approximation
2000	cy	Cut and widen road	\$6.68	\$13,354.22	Assumes riprable rock and soil, push with dozer, no hauling
1	ls	Install temporary bridge, 100-ft span	\$70,000.00	\$70,000.00	Bailey Bridges, Alabama, verbal estimate
800	lf	Benching	\$1.43	\$1,147.80	
230	sy	Compact and grade	\$4.85	\$1,114.36	
300	cy	Haul and spread 3in layer of gravel road base	\$64.96	\$19,488.33	Inc off-site material cost and delivery, handling, and spreading
Access Road Construction Subtotal =				\$107,031.68	
Mine Waste Excavation and Disposal					
0.4	ac	Clear trees/brush from waste rock piles	\$1,018.81	\$419.98	Rough approximation
2000	cy	Excavate/load waste rock from main area (WR-1); 1cy backhoe	\$3.68	\$7,350.34	Assumes no stockpiling at site
25	sy	Demolish concrete foundation	\$182.60	\$4,564.99	Assumes 7 to 24inch reinforced concrete
25	cy	Excavate/load contaminated soil/concrete from around mill foundation; 1cy backhoe	\$3.68	\$91.88	
100	cy	Excavate/load contaminated sediment from two seeps; 1cy backhoe	\$3.68	\$367.52	
150	cy	Backfill open shaft	\$5.51	\$826.91	
25	cy	Excavate waste rock from west zone (WR-2); 1cy backhoe	\$3.68	\$91.88	
2000	cy	Transport waste rock to staging area, 12cy dump, 3 mi r.t.	\$5.34	\$10,683.37	
2000	cy	Load waste rock from staging area for transport to landfill, 2.25cy FE loader	\$1.28	\$2,560.48	
133	bins	Transport debris to landfill rail station for disposal, 60 miles, 15cy bulk waste	\$1,200.00	\$160,000.00	Rabanco bulk bin, 25 ton (~15 cy) capacity, \$1200 per bin for haulage and rail fee
3	wk	XRF rental	\$2,530.00	\$7,590.00	Ashtead Technology Rentals +10%
6	ea	Confirmation samples (selected metals)	\$120.00	\$720.00	4 from main area and 2 from west zone; SVL
Mine Waste Excavation and Disposal Subtotal =				\$195,267.35	
Mine Waste Area Reclamation (includes mill foundation footprint)					
130	cy	Purchase topsoil from off-site source	\$23.18	\$3,012.98	Assumes grading performed as part of removal
130	cy	Haul topsoil to staging area, 50 mi haul	\$33.11	\$4,304.25	
130	cy	Load and haul stockpiled soil into truck, 2.25cy FE loader, 12 cy dump, 5 mi	\$6.35	\$824.98	
130	cy	Place 6 to 12" soil cover over excavated waste areas, FE loader	\$4.90	\$637.03	
1	ls	Reclaim seep areas	\$4,000.00	\$4,000.00	Mimic natural channel to Quartz Creek
20	msf	Fertilizer, 800/lb/ac	\$18.63	\$372.59	
20	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,821.03	Means+50% for USFS seed mix
20	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,489.93	Means+50% for USFS seed mix
0.4	ac	Hydromulching, wood cellulose	\$2,207.31	\$882.92	
1	ls	Plant tree seedlings in main area	\$1,000.00	\$1,000.00	Estimate
0.4	ac	Place wood slash back over areas	\$763.73	\$305.49	
Mine Waste Area Reclamation Subtotal =				\$18,651.21	

**Cost Estimate for Rainy Mine
Alternative 2 - Excavation and Off-Site Disposal**

Qty	Unit	Description	Unit Cost	Cost	Comment
Access Road Reclamation					
1	day	Ripped compacted surface	\$1,184.22	\$1,184.22	Assumed duration
3	day	Grade to blend with surrounding topography	\$1,184.22	\$3,552.66	Assumed duration
1	ls	Disassemble temporary bridge	\$10,000.00	\$10,000.00	
1	ls	Install safety barrier and warning signs	\$2,000.00	\$2,000.00	Rock barrier to prevent vehicular and ATV access
40	msf	Fertilizer, 800/lb/ac	\$18.63	\$745.19	
40	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$3,642.06	Means+50% for USFS seed mix
40	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$2,979.87	Means+50% for USFS seed mix
1	ac	Hydromulching, wood cellulose	\$2,207.31	\$2,207.31	
1	ac	Place wood slash back over areas	\$763.73	\$763.73	
Access Road Reclamation Subtotal =				\$27,075.03	
Miscellaneous					
1	ls	Staging area prep	\$2,000.00	\$2,000.00	
1	ls	Mobilization	\$20,000.00	\$20,000.00	
1	ls	Temporary erosion control BMPs	\$5,000.00	\$5,000.00	
Miscellaneous Subtotal =				\$27,000.00	
Post-removal Monitoring (3 year total)					
1	ls	Biannual monitoring of aquatic habitat, 6 events total, annual reports	\$49,472.00	\$49,472.00	Assumes 3 years of monitoring, 6 events, 3 aquatic sampling locations, limited analysis, no baseline or pre-removal survey or sampling
Post-removal Monitoring Subtotal =				\$49,472.00	
SUMMARY					
Access Road Improvement Subtotal =				\$5,000	
Bat Gate Installation Subtotal =				\$5,500	
Debris Removal Subtotal =				\$5,556	
Access Road Construction Subtotal =				\$107,032	
Mine Waste Excavation and Disposal Subtotal =				\$195,267	
Mine Waste Area Reclamation Subtotal =				\$18,651	
Access Road Reclamation Subtotal =				\$27,075	
Miscellaneous Subtotal =				\$27,000	
Removal Action Total =				\$391,081	
Design =				\$39,108	Design minimal because hauling waste off site, assumed 10% of removal action total
Removal Action Oversight =				\$40,000	Assumes 20-day construction period
Post-removal Monitoring Subtotal =				\$49,472	
Subtotal =				\$519,662	
Contingency 20%				\$103,932	
ALTERNATIVE 2 TOTAL =				\$623,594	

**Cost Estimate for Rainy Mine
Alternative 3a - Excavation and On-Site Disposal - Ridge Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
RAINY MINE - ALTERNATIVE 3A: EXCAVATION AND ON-SITE DISPOSAL, RIDGE REPOSITORY LOCATION (OPTION 1)					
ACCESS ROAD IMPROVEMENT					
1	ls	Access Road (FR 5640) Improvement	\$5,000.00	\$5,000.00	Estimate based on minor improvements to FR 5640
Access Road Improvement Subtotal =				\$5,000.00	
PHYSICAL HAZARDS MITIGATION:					
Bat Gate Installation					
1	ea	Bat gate, installed at open adit	\$5,500.00	\$5,500.00	
Bat Gate Installation Subtotal =				\$5,500.00	
Debris Removal					
1	ls	Collect miscellaneous debris and litter including mobilization	\$5,000.00	\$5,000.00	Based on crew of 6 employees with no overnight stay
20	cy	Load miscellaneous debris and litter, 1cy backhoe	\$3.32	\$66.44	Assumes equivalent to 1 truckload
6	hr	Haul mill debris to sanitary landfill, 12cy dump, 120mi r.t.	\$81.62	\$489.69	Assumes 3 hours per truckload
Debris Removal Subtotal =				\$5,556.13	
MINE WASTE REMOVAL:					
Access Road Construction					
100	ea	Clear trees, brush and downfall	\$19.27	\$1,926.98	Rough approximation
2000	cy	Cut and widen road	\$6.68	\$13,354.22	Assumes riprable rock and soil, push with dozer, no hauling
1	ls	Install temporary bridge, 100-ft span	\$70,000.00	\$70,000.00	Bailey Bridges, Alabama, verbal estimate
800	lf	Benching	\$1.43	\$1,147.80	
230	sy	Compact and grade	\$4.85	\$1,114.36	
300	cy	Haul and spread 3in layer of gravel road base	\$64.96	\$19,488.33	Inc off-site material cost and delivery, handling, and spreading
Access Road Construction Subtotal =				\$107,031.68	
Mine Waste Excavation and Disposal					
0.4	ac	Clear trees/brush from waste rock piles	\$1,018.81	\$420.99	Rough approximation
2000	cy	Excavate waste rock from main area (WR-1); 1cy backhoe	\$3.68	\$7,350.34	Assumes no haulage
25	sy	Demolish concrete foundation	\$182.60	\$4,564.99	Assumes 7 to 24inch reinforced concrete
25	cy	Excavate contaminated soil/concrete from around mill foundation; 1cy backhoe	\$3.68	\$91.88	
100	cy	Excavate contaminated sediment from two seeps; 1cy backhoe	\$3.68	\$367.52	
150	cy	Backfill open shaft	\$5.51	\$826.91	
25	cy	Excavate waste rock from west zone (WR-2); 1cy backhoe	\$3.68	\$91.88	
2000	cy	Transport waste rock to repository, 12cy dump, 2 mi rt	\$4.83	\$9,668.01	
16	hr	Screen waste material and stockpile fines for repository cover	\$389.40	\$6,230.44	On-site screening plant, 125 ton/hr
2000	cy	Compact waste material	\$1.16	\$2,317.67	Spread and compact, sheepsfoot, 8-inch lifts
3	wk	XRF rental	\$2,530.00	\$7,590.00	Ashtead Technology Rentals +10%
6	ea	Confirmation samples (selected metals)	\$120.00	\$720.00	4 from main area and 2 from west zone; SVL
Mine Waste Excavation and Disposal Subtotal =				\$40,240.63	

**Cost Estimate for Rainy Mine
Alternative 3a - Excavation and On-Site Disposal - Ridge Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
Repository Construction - Option 1 Engineered Cover:					
0.3	ac	Clear and grub repository footprint	\$7,057.87	\$2,117.36	
2760	cy	Excavate and stockpile topsoil, 300hp dozer, 150ft push	\$2.28	\$6,305.40	
500	cy	Compact bottom of repository, 6" lift, sheepsfoot	\$1.16	\$579.42	
500	cy	Place and compact screened fines from waste material	\$5.08	\$2,538.40	
1500	sy	Install GCL	\$1.69	\$2,532.89	Assumes 20% extra for periphery
250	cy	Purchase clean drain material from off-site source	\$8.72	\$2,179.72	
250	cy	Haul drain material to staging area, 100 mi	\$33.11	\$8,277.41	
250	cy	Load stockpiled drain material into truck, 2.25cy FE loader	\$1.28	\$320.06	
250	cy	Haul stockpiled drain material, 12cy dump, 1mi r.t.	\$4.33	\$1,081.58	
250	cy	Place 6 in layer of drain material over GCL	\$3.80	\$949.14	
1500	sy	Install filter fabric over drain material	\$1.38	\$2,069.35	Assumes 20% extra to blend
1000	cy	Place and compact 24" soil cover in 8-inch lifts	\$3.80	\$3,796.57	
14	msf	Fertilizer, 800/lb/ac	\$18.63	\$252.71	
14	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,235.10	
14	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,010.53	
0.3	ac	Hydromulching, wood cellulose	\$2,207.31	\$687.37	
0.3	ac	Place wood slash back over cover	\$763.73	\$237.83	
Repository Construction - Option 1 Engineered Cover Subtotal =				\$27,168.65	
Repository Construction - Option 2 Earthen Clay Cover:					
0.3	ac	Clear and grub repository footprint	\$7,057.87	\$2,117.36	
1000	cy	Excavate and stockpile topsoil, 300hp dozer, 150ft push	\$2.28	\$2,284.56	
500	cy	Compact bottom of repository, 6" lift, sheepsfoot	\$1.16	\$579.42	
1500	sy	Install 12 in clay liner	\$18.61	\$27,911.42	Assumes 20% extra for periphery
250	cy	Purchase clean drain material from off-site source	\$8.72	\$2,179.72	
250	cy	Haul drain material to staging area, 50 rt	\$33.11	\$8,277.41	
250	cy	Load stockpiled drain material into truck, 2.25cy FE loader	\$1.28	\$320.06	
250	cy	Haul stockpiled drain material, 12cy dump, 1mi r.t.	\$4.33	\$1,081.58	
250	cy	Place 6 in layer of drain material over clay	\$3.80	\$949.14	
1500	sy	Install filter fabric over drain material	\$1.38	\$2,069.35	Assumes 20% extra to blend
1000	cy	Place and compact 24" soil cover in 8-inch lifts	\$3.80	\$3,796.57	
14	msf	Fertilizer, 800/lb/ac	\$18.63	\$252.71	
14	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,235.10	
14	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,010.53	
0.3	ac	Hydromulching, wood cellulose	\$2,207.31	\$687.37	
0.3	ac	Place wood slash back over cover	\$763.73	\$237.83	
Repository Construction - Option 2 Earthen Clay Cover Subtotal =				\$50,008.78	
Mine Waste Area Reclamation					
130	cy	Load stockpiled soil into truck, 2.25cy FE loader	\$1.28	\$166.43	Growth medium stockpiled at repository
130	cy	Haul stockpiled soil, 12cy dump, 3mi r.t.	\$5.34	\$694.42	
130	cy	Place 6 to 12" soil cover over excavated waste areas, FE loader	\$4.90	\$637.03	
1	ls	Reclaim seep areas	\$4,000.00	\$4,000.00	Mimic natural channel to Quartz Creek
20	msf	Fertilizer, 800/lb/ac	\$18.63	\$372.59	
20	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,821.03	
20	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,489.93	
0.4	ac	Hydromulching, wood cellulose	\$2,207.31	\$882.92	
1	LS	Plant tree seedlings in main area	\$1,000.00	\$1,000.00	Estimate
0.4	ac	Place wood slash back over areas	\$763.73	\$305.49	
Mine Waste Area Reclamation Subtotal =				\$11,369.85	

**Cost Estimate for Rainy Mine
Alternative 3a - Excavation and On-Site Disposal - Ridge Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
Access Road Reclamation					
1	day	Ripped compacted surface	\$1,184.22	\$1,184.22	
10	day	Grade to blend with surrounding topography	\$1,184.22	\$11,842.21	
40	msf	Fertilizer, 800/lb/ac	\$18.63	\$745.19	
1	ls	Disassemble temporary bridge	\$10,000.00	\$10,000.00	
40	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$3,642.06	
40	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$2,979.87	
1	ac	Hydromulching, wood cellulose	\$2,207.31	\$2,207.31	
1	ac	Place wood slash back over areas	\$763.73	\$763.73	
Access Road Reclamation Subtotal =				\$33,364.58	
Miscellaneous					
200	lf	Install earthen diversion channel above repository	\$7.66	\$1,531.87	
600	lf	Install temporary fence around repository	\$2.95	\$1,768.05	
1	ls	Staging area prep	\$500.00	\$500.00	
1	ls	Mobilization	\$30,000.00	\$30,000.00	
1	ls	Temporary erosion control BMPs	\$4,000.00	\$4,000.00	
Miscellaneous Subtotal =				\$37,799.93	
Pos-removal Monitoring (3 year total)					
1	ls	Biannual monitoring of aquatic habitat, 6 events total, annual reports	\$49,472.00	\$49,472.00	Assumes 3 years of monitoring, 6 events, 3 aquatic sampling locations, limited analysis, no baseline or pre-removal survey or sampling
Post-removal Monitoring Subtotal =				\$49,472.00	

SUMMARY

OPTION 1 - ENGINEERED COVER:

Access Road Improvement Subtotal =	\$5,000
Bat Gate Installation Subtotal =	\$5,500
Debris Removal Subtotal =	\$5,556
Access Road Construction Subtotal =	\$107,032
Mine Waste Excavation and Disposal Subtotal =	\$40,241
Repository Construction - Option 1 Engineered Cover Subtotal =	\$27,169
Mine Waste Area Reclamation Subtotal =	\$11,370
Access Road Reclamation Subtotal =	\$33,365
Miscellaneous Subtotal =	\$37,800
Removal Action Total =	\$273,031
Design =	\$40,955
Removal Action Oversight =	\$60,000
Post-removal Monitoring Subtotal =	\$49,472
Subtotal =	\$423,458
Contingency 20%	\$84,692

Assumed 15% of removal action total
Assumed 30-day construction period

OPTION 1 - ENGINEERED COVER TOTAL = \$508,150

**Cost Estimate for Rainy Mine
Alternative 3a - Excavation and On-Site Disposal - Ridge Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
OPTION 2 - EARTHEN CLAY COVER:					
		Access Road Improvement Subtotal =		\$5,000	
		Bat Gate Installation Subtotal =		\$5,500	
		Debris Removal Subtotal =		\$5,556	
		Access Road Construction Subtotal =		\$107,032	
		Mine Waste Excavation and Disposal Subtotal =		\$40,241	
		Repository Construction - Option 2 Earthen Clay Cover Subtotal =		\$50,009	
		Mine Waste Area Reclamation Subtotal =		\$11,370	
		Access Road Reclamation Subtotal =		\$33,365	
		Miscellaneous Subtotal =		\$37,800	
		Removal Action Total =		\$295,872	
		Design =		\$44,381	Assumed 15% of removal action total
		Removal Action Oversight =		\$60,000	Assumed 30-day construction period
		Post-removal Monitoring Subtotal =		\$49,472	
		Subtotal =		\$449,724	
		Contingency 20%		\$89,945	
		OPTION 2 - EARTHEN CLAY COVER TOTAL =		\$539,669	

**Cost Estimate for Rainy Mine
Alternative 3b - Excavation and On-Site Disposal - Mill Site Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
RAINY MINE - ALTERNATIVE 3B: EXCAVATION AND ON-SITE DISPOSAL, MILL SITE REPOSITORY LOCATION (OPTION 2)					
ACCESS ROAD IMPROVEMENT					
1	ls	Access Road (FR 5640) Improvement	\$5,000.00	\$5,000.00	Estimate based on minor improvements to FR 5640
Access Road Improvement Subtotal =				\$5,000.00	
PHYSICAL HAZARDS MITIGATION:					
Bat Gate Installation					
1	ea	Bat gate, installed at open adit	\$5,500.00	\$5,500.00	
Bat Gate Installation Subtotal =				\$5,500.00	
Debris Removal					
1	ls	Collect miscellaneous debris and litter including mobilization	\$5,000.00	\$5,000.00	
20	cy	Load miscellaneous debris and litter, 1cy backhoe	\$3.32	\$66.44	Assumes equivalent to 1 truckload
6	hr	Haul mill debris to sanitary landfill, 12cy dump, 120mi r.t.	\$81.62	\$489.69	Assumes 3 hours per truckload
Debris Removal Subtotal =				\$5,556.13	
MINE WASTE REMOVAL:					
Access Road Construction					
100	ea	Clear trees access route	\$19.27	\$1,926.98	Rough approximation
2000	cy	Excavate and cut road	\$6.68	\$13,354.22	Assumes riprable rock and soil, push with dozer, no hauling
1	ls	Install temporary bridge, 100-ft span	\$70,000.00	\$70,000.00	Bailey Bridges, Alabama, verbal estimate
800	lf	Benching	\$1.43	\$1,147.80	
230	sy	Compact and grade	\$4.85	\$1,114.36	
300	cy	Haul and spread 3in layer of gravel road base	\$64.96	\$19,488.33	Inc off-site material cost and delivery, handling, and spreading
Access Road Construction Subtotal =				\$107,031.68	
French Drain Construction					
0.3	ac	Clear and grub repository footprint	\$7,057.87	\$2,394.74	Rough approximation
820	cy	Compact bottom of repository, 6" lift, sheepfoot	\$0.46	\$380.10	
60	cy	Excavate french drain trench	\$3.68	\$220.51	
1500	sy	Install filter fabric over soil slope	\$1.38	\$2,069.35	
430	ft	Install 6" perforated drain pipe	\$4.14	\$1,779.64	
500	cy	Purchase clean drain material from off-site source	\$6.93	\$3,465.47	
500	cy	Haul drain material to staging area, 50 rt	\$33.11	\$16,554.81	
500	cy	Load stockpiled drain material into truck, 2.25cy FE loader	\$1.28	\$640.12	
500	cy	Haul stockpiled drain material, 12cy dump, 3mi r.t.	\$5.34	\$2,670.84	
500	cy	Place drain rock	\$2.94	\$1,470.62	
1500	sy	Install HDPE liner over drain rock	\$14.10	\$21,157.05	
French Drain Construction Subtotal =				\$52,803.26	

**Cost Estimate for Rainy Mine
Alternative 3b - Excavation and On-Site Disposal - Mill Site Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
Mine Waste Excavation and Disposal					
0.4	ac	Clear trees/brush from waste rock piles	\$1,018.81	\$420.99	Rough approximation
2000	cy	Excavate waste rock from main area (WR-1); 1cy backhoe	\$3.68	\$7,350.34	
25	sy	Demolish concrete foundation	\$182.60	\$4,564.99	Assumes 7 to 24inch reinforced concrete
25	cy	Excavate contaminated soil/concrete from around mill foundation; 1cy backhoe	\$3.68	\$91.88	
150	cy	Backfill open shaft	\$5.51	\$826.91	
100	cy	Excavate contaminated sediment from two seeps; 1cy backhoe	\$3.68	\$367.52	
25	cy	Excavate waste rock from west zone (WR-2); 1cy backhoe	\$3.68	\$91.88	
25	cy	Transport waste rock to repository, 12cy dump, 1 mi rt	\$4.33	\$108.16	
16	hr	Screen waste material and stockpile fines for repository cover	\$389.40	\$6,230.44	On-site screening plant, 125 ton/hr
2000	cy	Spread waste in 8in lifts and compact, FE loader	\$6.06	\$12,118.12	
3	wk	XRF rental	\$2,530.00	\$7,590.00	Ashtead Technology Rentals +10%
6	ea	Confirmation samples (selected metals)	\$120.00	\$720.00	4 from main area and 2 from secondary workings; SVL
Mine Waste Excavation and Disposal Subtotal =				\$40,481.23	
Repository Construction - Option 1 Engineered Cover:					
450	cy	Excavate and stockpile topsoil, 300hp dozer, 150ft push	\$2.28	\$1,028.05	Soil for repository cap and to cover mine waste areas
1290	cy	Purchase topsoil from off-site source	\$23.18	\$29,897.99	Additional soil needed, import from local source <50miles
1290	cy	Haul topsoil to staging area, 50 rt	\$33.11	\$42,711.42	
1290	cy	Load stockpiled soil into truck, 2.25cy FE loader	\$1.28	\$1,651.51	
1290	cy	Haul stockpiled soil, 12cy dump, 3mi r.t.	\$5.34	\$6,890.78	
820	cy	Place and compact screened fines from waste material	\$5.08	\$4,162.98	
2450	sy	Install GCL	\$1.69	\$4,137.05	Assumes 20% extra for periphery
410	cy	Purchase clean drain material from off-site source	\$8.72	\$3,574.74	
410	cy	Haul drain material to staging area, 50 rt	\$33.11	\$13,574.95	
410	cy	Load stockpiled drain material into truck, 2.25cy FE loader	\$1.28	\$524.90	
410	cy	Haul stockpiled drain material, 12cy dump, 3mi r.t.	\$4.33	\$1,773.79	
410	cy	Place 6 in layer of drain material over GCL	\$3.80	\$1,556.59	
2450	sy	Install filter fabric over drain material	\$1.38	\$3,379.94	Assumes 20% extra to blend
1640	cy	Place and compact 24" soil cover in 8-inch lifts	\$3.80	\$6,226.38	
22	msf	Fertilizer, 800/lb/ac	\$18.63	\$410.96	
22	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$2,008.56	
22	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,643.37	
0.5	ac	Hydromulching, wood cellulose	\$2,207.31	\$1,117.82	
0.5	ac	Place wood slash back over cover	\$763.73	\$386.77	
Repository Construction - Option 1 Engineered Cover Subtotal =				\$126,658.55	
Repository Construction - Option 2 Earthen Clay Cover:					
450	cy	Excavate and stockpile topsoil, 300hp dozer, 150ft push	\$2.28	\$1,028.05	Soil for repository cap and to cover mine waste areas
1290	cy	Purchase topsoil from off-site source	\$33.11	\$42,711.42	
1290	cy	Haul topsoil to staging area, 50 rt	\$33.11	\$42,711.42	
1290	cy	Load stockpiled soil into truck, 2.25cy FE loader	\$1.28	\$1,651.51	
1290	cy	Haul stockpiled soil, 12cy dump, 3mi r.t.	\$5.08	\$6,549.08	
820	sy	Install 12 in clay liner	\$18.61	\$15,258.24	Assumes 20% extra for periphery
410	cy	Purchase clean drain material from off-site source	\$8.72	\$3,574.74	
410	cy	Haul drain material to staging area, 50 rt	\$33.11	\$13,574.95	
410	cy	Load stockpiled drain material into truck, 2.25cy FE loader	\$1.28	\$524.90	
410	cy	Haul stockpiled drain material, 12cy dump, 3mi r.t.	\$5.34	\$2,190.09	
410	cy	Place 6 in layer of drain material over clay	\$3.80	\$1,556.59	
820	sy	Install filter fabric over drain material	\$1.38	\$1,131.25	Assumes 20% extra to blend
1640	cy	Place and compact 24" soil cover in 8-inch lifts	\$3.80	\$6,226.38	
22	msf	Fertilizer, 800/lb/ac	\$18.63	\$410.96	
22	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$2,008.56	

**Cost Estimate for Rainy Mine
Alternative 3b - Excavation and On-Site Disposal - Mill Site Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
22	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,643.37	
0.5	ac	Hydromulching, wood cellulose	\$2,207.31	\$1,117.82	
0.5	ac	Place wood slash back over cover	\$763.73	\$386.77	
Repository Construction - Option 2 Earthen Clay Cover Subtotal =				\$144,256.09	
Mine Waste Area Reclamation (includes mill foundation footprint)					
2	cy	Load stockpiled soil into truck, 2.25cy FE loader	\$1.28	\$1.95	Material stockpiled at millsite, only need to haul for WR-2
2	cy	Haul stockpiled soil, 12cy dump, 1mi r.t. (west zone WR-2)	\$4.33	\$6.60	
100	cy	Push stockpiled soil over WR-1 and Mill Site	\$4.66	\$464.73	Assumes 25% of area covered by repository
101	cy	Place 6 to 12" soil cover over excavated waste areas, 1cy backhoe	\$2.45	\$248.21	
1	ls	Reclaim seep areas	\$4,000.00	\$4,000.00	Mimic natural channel to Quartz Creek
15	msf	Fertilizer, 800/lb/ac	\$18.63	\$279.45	Assumes 25% of area covered by repository
15	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,365.77	
15	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,117.45	
0.3	ac	Hydromulching, wood cellulose	\$2,207.31	\$662.19	
1	ls	Plant tree seedlings in main area	\$1,000.00	\$1,000.00	Estimate
0.3	ac	Place wood slash back over areas	\$763.73	\$229.12	
Mine Waste Area Reclamation Subtotal =				\$9,375.47	
Access Road Reclamation					
1	day	Ripped compacted surface	\$1,184.22	\$1,184.22	
10	day	Grade to blend with surrounding topography	\$1,184.22	\$11,842.21	
1	ls	Disassemble temporary bridge	\$10,000.00	\$10,000.00	
40	msf	Fertilizer, 800/lb/ac	\$18.63	\$745.19	
40	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$3,642.06	
40	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$2,979.87	
1	ac	Hydromulching, wood cellulose	\$2,207.31	\$2,207.31	
1	ac	Place wood slash back over areas	\$763.73	\$763.73	
Access Road Reclamation Subtotal =				\$33,364.58	
Miscellaneous					
400	lf	Install riprap diversion channel above repository	\$20.93	\$8,370.11	
900	lf	Install temporary fence around repository	\$2.95	\$2,652.08	
1	ls	Staging area prep	\$500.00	\$500.00	
1	ls	Mobilization	\$30,000.00	\$30,000.00	
1	ls	Temporary erosion control BMPs	\$5,000.00	\$5,000.00	
Miscellaneous Subtotal =				\$46,522.20	
Post-removal Monitoring (3 year total)					
1	ls	Biannual monitoring of aquatic habitat, 6 events total, annual reports	\$49,472.00	\$49,472.00	Assumes 3 years of monitoring, 6 events, 3 aquatic sampling locations, limited analysis, no baseline or pre-removal survey or sampling
Post-removal Monitoring Subtotal =				\$49,472.00	

**Cost Estimate for Rainy Mine
Alternative 3b - Excavation and On-Site Disposal - Mill Site Repository**

Qty	Unit	Description	Unit Cost	Cost	Comment
SUMMARY					
		OPTION 1 - & ENGINEERED COVER:			
		Access Road Improvement Subtotal =		\$5,000	
		Bat Gate Installation Subtotal =		\$5,500	
		Debris Removal Subtotal =		\$5,556	
		Access Road Construction Subtotal =		\$107,032	
		French Drain Construction Subtotal =		\$52,803	
		Mine Waste Excavation and Disposal Subtotal =		\$40,481	
		Repository Construction - Option 1 Engineered Cover Subtotal =		\$126,659	
		Mine Waste Area Reclamation Subtotal =		\$9,375	
		Access Road Reclamation Subtotal =		\$33,365	
		Miscellaneous Subtotal =		\$46,522	
		Removal Action Total =		\$432,293	
		Design =		\$64,844	Assumed 15% of removal action total
		Removal Action Oversight =		\$60,000	Assumed 30-day construction period
		Post-removal Monitoring Subtotal =		\$49,472	
		Subtotal =		\$606,609	
		Contingency 20%		\$121,322	
		OPTION 1 - ENGINEERED COVER TOTAL =		\$727,931	
		OPTION 2 - EARTHEN CLAY COVER:			
		Access Road Improvement Subtotal =		\$5,000	
		Bat Gate Installation Subtotal =		\$5,500	
		Debris Removal Subtotal =		\$5,556	
		Access Road Construction Subtotal =		\$107,032	
		French Drain Construction Subtotal =		\$52,803	
		Mine Waste Excavation and Disposal Subtotal =		\$40,481	
		Repository Construction - Option 2 Earthen Clay Cover Subtotal =		\$144,256	
		Mine Waste Area Reclamation Subtotal =		\$9,375	
		Access Road Reclamation Subtotal =		\$33,365	
		Miscellaneous Subtotal =		\$46,522	
		Removal Action Total =		\$449,891	
		Design =		\$67,484	Assumed 15% of removal action total
		Removal Action Oversight =		\$60,000	Assumed 30-day construction period
		Post-removal Monitoring Subtotal =		\$49,472	
		Subtotal =		\$626,846	
		Contingency 20%		\$125,369	
		OPTION 2 - EARTHEN CLAY COVER TOTAL =		\$752,215	

Cost Estimate for Rainy Mine
Recommended Alternative - Excavation and On-Site Disposal in Ridge Repository

Qty	Unit	Description	Unit Cost	Cost	Comment
RAINY MINE - RECOMMENDED ALTERNATIVE: EXCAVATION AND ON-SITE DISPOSAL IN RIDGE REPOSITORY WITH ENGINEERED COVER					
ACCESS ROAD IMPROVEMENT					
1	ls	Access Road (FR 5640) Improvement	\$5,000.00	\$5,000.00	Estimate based on minor improvements to FR 5640
Access Road Improvement Subtotal =				\$5,000.00	
PHYSICAL HAZARDS MITIGATION:					
Bat Gate Installation					
1	ea	Bat gate, installed at open adit	\$5,500.00	\$5,500.00	
Bat Gate Installation Subtotal =				\$5,500.00	
Debris Removal					
1	ls	Collect miscellaneous debris and litter including mobilization	\$5,000.00	\$5,000.00	Based on crew of 6 employees with no overnight stay
20	cy	Load miscellaneous debris and litter, 1cy backhoe	\$3.32	\$66.44	Assumes equivalent to 1 truckload
6	hr	Haul mill debris to sanitary landfill, 12cy dump, 120mi r.t.	\$81.62	\$489.69	Assumes 3 hours per truckload
Debris Removal Subtotal =				\$5,556.13	
MINE WASTE REMOVAL:					
Access Road Construction					
100	ea	Clear trees, brush and downfall	\$19.27	\$1,926.98	Rough approximation
2000	cy	Cut and widen road	\$6.68	\$13,354.22	Assumes riprable rock and soil, push with dozer, no hauling
1	ls	Install temporary bridge, 100-ft span	\$70,000.00	\$70,000.00	Bailey Bridges, Alabama, verbal estimate
800	lf	Benching	\$1.43	\$1,147.80	
230	sy	Compact and grade	\$4.85	\$1,114.36	
300	cy	Haul and spread 3in layer of gravel road base	\$64.96	\$19,488.33	Inc off-site material cost and delivery, handling, and spreading
Access Road Construction Subtotal =				\$107,031.68	
Mine Waste Excavation and Disposal					
0.4	ac	Clear trees/brush from waste rock piles	\$1,018.81	\$420.99	Rough approximation
2000	cy	Excavate waste rock from main area (WR-1); 1cy backhoe	\$3.68	\$7,350.34	Assumes no haulage
25	sy	Demolish concrete foundation	\$182.60	\$4,564.99	Assumes 7 to 24inch reinforced concrete
25	cy	Excavate contaminated soil/concrete from around mill foundation; 1cy backhoe	\$3.68	\$91.88	
100	cy	Excavate contaminated sediment from two seeps; 1cy backhoe	\$3.68	\$367.52	
150	cy	Backfill open shaft	\$5.51	\$826.91	
25	cy	Excavate waste rock from west zone (WR-2); 1cy backhoe	\$3.68	\$91.88	
2000	cy	Transport waste rock to repository, 12cy dump, 2 mi rt	\$4.83	\$9,668.01	
16	hr	Screen waste material and stockpile fines for repository cover	\$389.40	\$6,230.44	On-site screening plant, 125 ton/hr
2000	cy	Compact waste material	\$1.16	\$2,317.67	Spread and compact, sheepsfoot, 8-inch lifts
3	wk	XRF rental	\$2,530.00	\$7,590.00	Ashtead Technology Rentals +10%
6	ea	Confirmation samples (selected metals)	\$120.00	\$720.00	4 from main area and 2 from west zone; SVL
Mine Waste Excavation and Disposal Subtotal =				\$40,240.63	

Cost Estimate for Rainy Mine
Recommended Alternative - Excavation and On-Site Disposal in Ridge Repository

Qty	Unit	Description	Unit Cost	Cost	Comment
Repository Cover Construction - Engineered Cover:					
0.3	ac	Clear and grub repository footprint	\$7,057.87	\$2,117.36	
2760	cy	Excavate and stockpile topsoil, 300hp dozer, 150ft push	\$2.28	\$6,305.40	
500	cy	Compact bottom of repository, 6" lift, sheepsfoot	\$1.16	\$579.42	
500	cy	Place and compact screened fines from waste material	\$5.08	\$2,538.40	
1500	sy	Install GCL	\$1.69	\$2,532.89	Assumes 20% extra for periphery
250	cy	Purchase clean drain material from off-site source	\$8.72	\$2,179.72	
250	cy	Haul drain material to staging area, 100 mi	\$33.11	\$8,277.41	
250	cy	Load stockpiled drain material into truck, 2.25cy FE loader	\$1.28	\$320.06	
250	cy	Haul stockpiled drain material, 12cy dump, 1mi r.t.	\$4.33	\$1,081.58	
250	cy	Place 6 in layer of drain material over GCL	\$3.80	\$949.14	
1500	sy	Install filter fabric over drain material	\$1.38	\$2,069.35	Assumes 20% extra to blend
1000	cy	Place and compact 24" soil cover in 8-inch lifts	\$3.80	\$3,796.57	
14	msf	Fertilizer, 800/lb/ac	\$18.63	\$252.71	
14	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,235.10	
14	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,010.53	
0.3	ac	Hydromulching, wood cellulose	\$2,207.31	\$687.37	
0.3	ac	Place wood slash back over cover	\$763.73	\$237.83	
Repository Cover Construction - Engineered Cover Subtotal =				\$27,168.65	
Mine Waste Area Reclamation					
130	cy	Load stockpiled soil into truck, 2.25cy FE loader	\$1.28	\$166.43	Growth medium stockpiled at repository
130	cy	Haul stockpiled soil, 12cy dump, 3mi r.t.	\$5.34	\$694.42	
130	cy	Place 6 to 12" soil cover over excavated waste areas, FE loader	\$4.90	\$637.03	
1	ls	Reclaim seep areas	\$4,000.00	\$4,000.00	Mimic natural channel to Quartz Creek
20	msf	Fertilizer, 800/lb/ac	\$18.63	\$372.59	
20	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$1,821.03	
20	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$1,489.93	
0.4	ac	Hydromulching, wood cellulose	\$2,207.31	\$882.92	
1	LS	Plant tree seedlings in main area	\$1,000.00	\$1,000.00	Estimate
0.4	ac	Place wood slash back over areas	\$763.73	\$305.49	
Mine Waste Area Reclamation Subtotal =				\$11,369.85	
Access Road Reclamation					
1	day	Ripped compacted surface	\$1,184.22	\$1,184.22	
10	day	Grade to blend with surrounding topography	\$1,184.22	\$11,842.21	
40	msf	Fertilizer, 800/lb/ac	\$18.63	\$745.19	
1	ls	Disassemble temporary bridge	\$10,000.00	\$10,000.00	
40	msf	Seeding, slope mix, 6lb/MSF, push spreader	\$91.05	\$3,642.06	
40	msf	Seeding, wildflowers, 0.6lb/MSF, push spreader	\$74.50	\$2,979.87	
1	ac	Hydromulching, wood cellulose	\$2,207.31	\$2,207.31	
1	ac	Place wood slash back over areas	\$763.73	\$763.73	
Access Road Reclamation Subtotal =				\$33,364.58	
Miscellaneous					
200	lf	Install earthen diversion channel above repository	\$7.66	\$1,531.87	
600	lf	Install temporary fence around repository	\$2.95	\$1,768.05	
1	ls	Staging area prep	\$500.00	\$500.00	
1	ls	Mobilization	\$30,000.00	\$30,000.00	
1	ls	Temporary erosion control BMPs	\$4,000.00	\$4,000.00	
Miscellaneous Subtotal =				\$37,799.93	
Post-removal Monitoring (3 year total)					
1	ls	Biannual monitoring of aquatic habitat, 6 events total, annual reports	\$49,472.00	\$49,472.00	Assumes 3 years of monitoring, 6 events, 3 aquatic sampling locations, limited analysis, no baseline or pre-removal survey or sampling
Post-removal Monitoring Subtotal =				\$49,472.00	

Cost Estimate for Rainy Mine
Recommended Alternative - Excavation and On-Site Disposal in Ridge Repository

Qty	Unit	Description	Unit Cost	Cost	Comment
SUMMARY					
		Access Road Improvement Subtotal =		\$5,000	
		Bat Gate Installation Subtotal =		\$5,500	
		Debris Removal Subtotal =		\$5,556	
		Access Road Construction Subtotal =		\$107,032	
		Mine Waste Excavation and Disposal Subtotal =		\$40,241	
		Repository Cover Construction - Engineered Cover Subtotal =		\$27,169	
		Mine Waste Area Reclamation Subtotal =		\$11,370	
		Access Road Reclamation Subtotal =		\$33,365	
		Miscellaneous Subtotal =		\$37,800	
		Removal Action Total =		\$273,031	
		Design =		\$40,955	Assumed 15% of removal action total
		Removal Action Oversight =		\$60,000	Assumed 30-day construction period
		Post-removal Monitoring Subtotal =		\$49,472	
		Subtotal =		\$423,458	
		Contingency 20%		\$84,692	
		RECOMMENDED ALTERNATIVE TOTAL =		\$508,150	

Estimated Removal Action Cost Summary
Rainy Mine EE/CA

TASK	Description	Alternative 2 Cost	Alternative 3 Cost		Recommended Alternative Cost
			Alt 3A	Alt 3B	
Access Road Improvement		\$5,000	\$5,000	\$5,000	\$5,000
		subtotal = \$5,000	\$5,000	\$5,000	\$5,000
Physical Hazards Mitigation	Bat Gate Installation	\$5,500	\$5,500	\$5,500	\$5,500
	Debris Removal	\$5,556	\$5,556	\$5,556	\$5,556
	subtotal =	\$11,056	\$11,056	\$11,056	\$11,056
Mine Waste Removal	Access Road Construction	\$107,032	\$107,032	\$107,032	\$107,032
	Mine Waste Excavation and Disposal	\$195,267	\$40,241	\$40,481	\$40,241
	French Drain Construction			\$52,803	
	Repository Construction ^a		\$27,169	\$126,659	\$27,169
	Mine Waste Area Reclamation	\$18,651	\$11,370	\$9,375	\$11,370
	Access Road Reclamation	\$27,075	\$33,365	\$33,365	\$33,365
	subtotal =	\$348,025	\$219,175	\$369,715	\$219,175
Miscellaneous	Staging Area Preparation	\$2,000	\$500	\$500	\$500
	Mobilization	\$20,000	\$30,000	\$30,000	\$30,000
	Temporary Erosion Control BMPs	\$5,000	\$4,000	\$5,000	\$4,000
	Install Diversion Channel Above Repository		\$1,532	\$8,370	\$1,532
	Install Temporary Fence Around Repository		\$1,768	\$2,652	\$1,768
	subtotal =	\$27,000	\$37,800	\$46,522	\$37,800
Removal Action Subtotal =		\$391,081	\$273,031	\$432,293	\$273,031
Design and Oversight	Design	\$39,108	\$40,955	\$64,844	\$40,955
	Removal Action Oversight	\$40,000	\$60,000	\$60,000	\$60,000
	subtotal =	\$79,108	\$100,955	\$124,844	\$100,955
Post-removal Monitoring	Post-removal Monitoring for 3 years	\$49,472	\$49,472	\$49,472	\$49,472
	subtotal =	\$49,472	\$49,472	\$49,472	\$49,472
SUBTOTAL =		\$519,662	\$423,458	\$606,609	\$423,458
Contingency	20% Contingency	\$103,932	\$84,692	\$121,322	\$84,692
TOTAL COST = \$ 623,594 \$ 508,150 \$ 727,931 \$ 508,150					

Notes:

^aCost based on repository cover option 1 - engineered cover; cover option 2 - earthen clay cover would increase cost from \$25,000 to \$31,000 based on options selected